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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/542,643	07/19/2005	Toshinori Takatsuka	10996.0220-00	1715

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EXAMINER	
SITTA, GRANT	

ART UNIT	PAPER NUMBER
2629	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/542,643	TAKATSUKA, TOSHINORI	
	Examiner	Art Unit	
	GRANT D. SITTA	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 October 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *19,21,23-26,33-35,37,38,43,44,46,47,49-66,69 and 70* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *19,21,23-26,33-35,37,38,43,44,46,47,49-66,69 and 70* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 June 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claim 19, 21, 23- 26, 33-35, 37-38, 43-44, 46-47, 49/(21, 23- 26, 33-35, 37-38, 43-44, 46-47), 50-66 and 69-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takatsuka et al (2004/0080491), as a translation of (WO/2002/086694) Published 10/31/2002, in view of Yokoji et al (6,864,679) hereinafter Yokoji.

4. In regards to claim 19, Takatsuka teaches a pointing device comprising (abstract):

a ring-like magnet that is movably supported in a plane (fig. 9a (52)), and is magnetized [0097]

a plurality of magnetic sensors (fig. 9b (51s)) for detecting magnetic flux density [0097]

produced by said ring-like magnet in a direction parallel to said plane are placed outside said ring-like magnet [0097], wherein

said magnetic sensors are disposed symmetrically from each other to said ring-like magnet (fig. 9b 51 and 52 symmetric with respect to X and Y axis along center),

said magnetic sensors are positioned to detect variations in the magnetic flux density in the direction parallel to said plane [0097], the variations being caused by movement of said ring-like magnet in a direction parallel to said plane [0097-0113].

Takatsuka fails to disclose wherein:

the magnet is magnetized such that said ring-like magnet comprises inner and outer ring sections of north and south magnetization that are both in said plane along a radius of said ring-like magnet; and

wherein said inner ring sections are of both north and south magnetization such that inner ring sections of north magnetization are placed in an alternative manner with respect to inner ring sections of south magnetization along an inner circumference of said ring-like magnet.

However, Yokoji teaches

a ring-like magnet is magnetized such that said ring-like magnet (col. 3, lines 25-27) comprises inner and outer ring

sections of north and south magnetization that are both in said plane along (fig. 2 (13)) a radius of said ring-like magnet; and

wherein said inner ring sections are of both north and south magnetization such that inner ring sections of north magnetization are placed in an alternative manner with respect to inner ring sections of south magnetization along an inner circumference of said ring-like magnet "[t]he ring-shaped magnet 13 has its N poles and S poles magnetized at specified angle alternately" (col. 13, lines 25-20, col. 5, lines 3-21,).

It would have been obvious to one of ordinary skill in the art to have replaced the magnet of Takatsuka with the alternating N and S poles, ring shaped magnet of Yokoji in order to decreases magnetic field leaking outside and intensity of the magnetic field is increased as stated in col. 5, lines 13-21 of Yokoji.

5. In regards to claim 51. Takatsuka teaches a pointing device comprising (abstract):

a ring-like magnet that is movably supported in a plane, and is internally and externally magnetized along said ring in said plane (fig. 9b (52)); and

a plurality of magnetic sensors wherein said plurality of magnetic sensors are positioned such that a distance from an intersection of half way between (fig. 4 (11)) an upper and lower surface of said ring-like magnet and a half way point of said magnetic sensors is

within a range from 0 to 0.75 mm in a vertical direction to said plane [0092]

wherein said magnetic sensors are positioned to detect variations in the magnetic flux density in the direction parallel to said plane [0096], the variations being caused by movement of said ring-like magnet [0096-0109].

Takatsuka fails to disclose wherein:

wherein the internal magnetization of said ring-like magnet contains sections of north magnetization placed in an alternative manner with respect to sections of south magnetization along an inner circumference of said ring-like magnet.

However, Yokoji teaches

wherein the internal magnetization of said ring-like magnet contains sections of north magnetization placed in an alternative manner with respect to sections of south magnetization along an inner circumference of said ring-like magnet. "[t]he ring-shaped magnet 13 has its N poles and S poles magnetized at specified angle alternately" (col. 13, lines 25-20, col. 5, lines 3-21,).

It would have been obvious to one of ordinary skill in the art to have replaced the magnet of Takatsuka with the alternating N and S poles, ring shaped magnet of Yokoji in order to decreases magnetic field leaking outside and intensity of the magnetic field is increased as stated in col. 5, lines 13-21 of Yokoji

6. In regards to claim 21, Takatsuka as modified by Yokoji teaches the pointing device as claimed in claim 19, further comprising a printed circuit board on which a resin layer with elastic deformation is provided, wherein said ring-like magnet is fixed to said resin layer, and said ring-like magnet is movably supported in parallel to said printed circuit board, said magnetic sensors are placed on said printed circuit board ([0024-0027] Takatsuka).

7. In regards to claim 23, Takatsuka as modified by Yokoji wherein said magnetic sensors are magnetic sensors utilizing Hall effect, and the output signals are proportional to the magnetic flux density ([006,0019,0033, 0083] Takatsuka).

8. In regards to claim 24, Takatsuka as modified by Yokoji wherein said magnetic sensors are magnetic sensors utilizing magneto-resistive effect ([0115] Takatsuka).

9. In regards to claim 25, Takatsuka as modified by Yokoji the pointing device as claimed in claim 19, further comprising an origin returning means for returning said ring-like magnet to the origin using magnetic force generated by said ring-like magnet (abstract, 0021, 0085, 0098] Takatsuka).

10. In regards to claim 26, Takatsuka as modified by Yokoji teaches wherein said magnetic sensors are disposed and faced to one of the outer ring sections of said ring-

like magnet (fig. 9b (51) and fig. 4 (11) Takatsuka).

11. In regards to claim 33, Takatsuka as modified by Yokoji teaches the pointing device as claimed in claim 21, wherein said resin layer and said printed circuit board have their opposing faces not bonded to each other ([0025] Takatsuka).

12. In regards to claim 34, Takatsuka as modified by Yokoji teaches the pointing device as claimed in claim 21, wherein said resin layer is an elastic sheet ([0024] Takatsuka).

13. In regards to claim 35, Takatsuka as modified by Yokoji teaches the pointing device as claimed in claim 21, wherein said resin layer is a silicone resin ([0024] Takatsuka).

14. In regards to claim 37, Takatsuka as modified by Yokoji teaches the pointing device as claimed in claim 21, further comprising a switch on the resin layer side of said printed circuit board and at about the center of said ring-like magnet (abstract, [0021] Takatsuka).

15. In regards to claim 38, Takatsuka as modified by Yokoji teaches the pointing device as claimed in claim 37, further comprising a projection for depressing said switch

at a portion facing said switch on said resin layer ([0021, 0048, 0101] Takatsuka).

16. In regards to claim 43, Takatsuka as modified by Yokoji teaches wherein said magnetic sensors utilizing the Hall effect are disposed on the resin layer side of said printed circuit board to detect the magnetic flux density in a direction parallel to the surface of said printed circuit board (fig. 3 (11 and 13) Takatsuka).

17. In regards to claim 44, Takatsuka as modified by Yokoji teaches the pointing device as claimed in claim 23, wherein said magnetic sensors utilizing the Hall effect are magnetic sensors with a single output terminal (fig. 4 (11) Takatsuka).

In regards to claim 46, Takatsuka as modified by Yokoji teaches wherein said magnetic sensors utilizing the magneto-resistive effect are semiconductor magneto-resistive elements which are disposed on the resin layer side of said printed circuit board to detect the magnetic flux density in a direction parallel to the surface of said printed circuit board ([0005, 00115, 0155,] Takatsuka).

18. In regards to claim 44, Takatsuka as modified by Yokoji teaches he pointing device as claimed in claim 24, wherein said magnetic sensors utilizing the magneto-resistive effect are four semiconductor magneto-resistive elements disposed symmetrically on X and Y axes, which are two axes on a two dimensional plane of an orthogonal system, wherein two magnetic sensors on the X axis are electrically

connected at a first connection point; and two magnetic sensors on the Y axis are electrically connected at a second connection point, and wherein said pointing device detects variations in ambient magnetic flux density caused by movement of said ring-like magnet using electric signals at the first and second connection points (fig. 4 (11) and [0005, 00115, 0155,] Takatsuka).

19. In regards to claim 49, Takatsuka as modified by Yokoji teaches an electronic device incorporating the pointing device as defined in any one of claims 19, 21, 23-26, 33-35, 37, 38, 43, 44, 46, and 47 ([0003] persona computer or mobile phone Takatsuka).

20. In regards to claim 50, Takatsuka as modified by Yokoji teaches the pointing device as claimed in claim 19, wherein said ring-type magnet is magnetized at M sets of north-south poles, where M = K x I, K equals the number of magnetic sensors, and I is an integer equal to or greater than one (fig. 2 13 plural poles at least 8 shown in view of 4 sensors of Takaatsuka. Thus, M (8)=K(4) XI (1 or 2) is satisfied.)

21. In regards to claim 52, Takatsuka as modified by Yokoji teaches wherein said magnetic sensors are magnetic sensors utilizing magneto-resistive effect ([0115] Takatsuka).

22. In regards to claim 53, Takatsuka as modified by Yokoji teaches the pointing device as claimed in claim 52, wherein said magnetic sensors utilizing the magneto-resistive effect are four semiconductor magneto-resistive elements disposed symmetrically on X and Y axes, which are two axes on a two dimensional plane of an orthogonal system, wherein two magnet sensors on the X axis are electrically connected at a first connection point; and two magnetic sensors on the Y axis are electrically connected at a second connection point, and wherein said pointing device detects variations in ambient magnetic flux density caused by movement of said ring-like magnet using electric signals at the first and second connection points (fig. 4 (11) and [0005, 00115, 0155,] Takatsuka).

23. In regards to claim 54, Takatsuka as modified by Yokoji teaches the pointing device as claimed in the claim 51, wherein said ring-like magnet is internally and externally unipolarly magnetized (col. 13, lines 25-20, col. 5, lines 3-21 single north or south pole Yokoji) .

24. In regards to claim 55, Takatsuka as modified by Yokoji teaches the pointing device as claimed in claim 51, wherein said ring-like magnet is internally and externally magnetized in a multipolar manner in the direction of its circumference, and said magnetic sensors are faced to a magnetic pole of said ring-like magnet magnetized in a

multipolar manner (col. 13, lines 25-20, col. 5, lines 3-21 multiple north or south pole Yokoji).

25. In regards to claim 56, Takatsuka as modified by Yokoji teaches the pointing device as claimed in claim 51, wherein said magnetic sensors are disposed symmetrically on X and Y axes, which are two axes on a two dimensional plane of an orthogonal system, and said ring-like magnet is placed near said magnetic sensors (fig. 4 (11) [0005 00115, and 0115] Takatsuka).

26. In regards to claim 57, Takatsuka as modified by Yokoji teaches the pointing device as claimed in claim 51, wherein said magnetic sensors are magnetic sensors utilizing Hall effect, and the output signals are proportional to the magnetic flux density ([006,0019,0033, 0083] Takatsuka).

27. In regards to claim 58, Takatsuka as modified by Yokoji teaches the pointing device as claimed in claim 57, wherein said magnetic sensors utilizing the Hall effect are magnetic sensors with a single output terminal (fig. 4 (11) Takatsuka).

28. In regards to claim 59, Takatsuka as modified by Yokoji teaches the pointing device as claimed in claim 51, further comprising an origin returning means for returning said ring-like magnet to the origin using magnetic force generated by said ring-like

magnet (abstract, 0021, 0085, 0098] Takatsuka).

29. In regards to claim 60, Takatsuka as modified by Yokoji teaches the pointing device as claimed in claim 51, further comprising a printed circuit board on which a resin layer with elastic deformation is provided, a switch on the resin layer side of said printed circuit board and at about the center of said ring-like magnet, and a projection for depressing said switch at a portion facing said switch on said resin layer ([0021, 0048, 0101] Takatsuka).

30. In regards to claim 61, Takatsuka as modified by Yokoji teaches the pointing device as claimed in claim 60, wherein said resin layer and said printed circuit board have their opposing faces not bonded to each other ([0025] Takatsuka).

31. In regards to claim 62, Takatsuka as modified by Yokoji teaches the pointing device as claimed in claim 60, wherein said resin layer is an elastic sheet ([0024] Takatsuka).

32. In regards to claim 63, Takatsuka as modified by Yokoji teaches the pointing device as claimed in claim 60, wherein said resin layer is a silicone resin ([0024] Takatsuka).

33. In regards to claim 64, Takatsuka as modified by Yokoji teaches an electronic device incorporating the pointing device as defined in claim 51 [0003] Takatsuka.

34. In regards to claim 65, Takatasuka as modified by Yokoji fails to teach the pointing device as claimed in claim 51, wherein said distance in the vertical direction is within 0 and 0.5 mm.

However, the at the time of the invention, there had been been recognized problem or need in the art, Takatsuka states, "[t]he foregoing embodiment of the pointing device places the magnetic sensors 11 on the bottom surface of the printed circuit board 14, which is farther away from the magnet 12 than the top surface thereof. If they can be placed on the top surface of the printed circuit board 14 closer to the magnet 12 as shown in FIG. 3, a more high sensitive pointing device can be achieved because of an increase in the output sensitivity of the magnetic sensors 11. The present invention is not limited to the foregoing embodiments, but is applicable to a variety of variations." [0090]. There is a finite number of identified, predictable potential solutions with a reasonable expectation of success which end with 0 (.5 to 0). Therefore, it would have been obvious to one of ordinary skill in the art to have pursued the known potential solutions with a reasonable expectation of success at getting the magnet as close as possible.

35. In regards to claim 66, Takatasuka as modified by Yokoji fails to teach the pointing device as claimed in claim 51, wherein said distance in the vertical distance is within 0 and 0.25 mm.

However, the at the time of the invention, there had been been recognized problem or need in the art, Takatsuka states, "[t]he foregoing embodiment of the pointing device places the magnetic sensors 11 on the bottom surface of the printed circuit board 14, which is farther away from the magnet 12 than the top surface thereof. If they can be placed on the top surface of the printed circuit board 14 closer to the magnet 12 as shown in FIG. 3, a more high sensitive pointing device can be achieved because of an increase in the output sensitivity of the magnetic sensors 11. The present invention is not limited to the foregoing embodiments, but is applicable to a variety of variations." [0090]. There are a finite number of identified, predictable potential solutions with a reasonable expectation of success which end at with 0 (.25mm to 0). Therefore, it would have been obvious to one of ordinary skill in the art to have pursued the known potential solutions with a reasonable expectation of success at getting the magnet as close as possible.

36. In regards to claim 69, Takatsuka as modified by Yokoji teaches the pointing device as claimed in claim 19, wherein said outer ring sections are of both north and south magnetization such that outer ring sections of north magnetization are placed in an alternative manner with respect to outer ring sections of south magnetization along

an outer circumference of said ring-like magnet (col. 13, lines 25-20, col. 5, lines 3-21 Yokoji).

37. In regards to claim 70, Takatsuka as modified by Yokoji teaches the pointing device as claimed in claim 69, wherein said inner ring sections of north magnetization are placed opposite to said outer ring sections of south magnetization, and said inner ring sections of south magnetization are placed opposite to said outer ring sections of north magnetization (col. 13, lines 25-20, col. 5, lines 3-21 Yokoji).

Response to Arguments

38. Applicant's arguments with respect to claims 19, 21, 23-26, 33-35,43-44,46-47,49-66, and 69-70 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GRANT D. SITTA whose telephone number is (571)270-1542. The examiner can normally be reached on M-F 9-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on 571-272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sumati Lefkowitz/
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Examiner, Art Unit 2629